IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Chang
Application No. 09/701,536
Filed: June 18, 2001
Confirmation No. 5492
For: NUCLEIC ACID VACCINES FOR PREVENTION OF FLAVIVIRUS INFECTION
Examiner: Jeffrey S. Parkin
Art Unit: 1648
Attorney Reference No. 6395-64907-01

CERTIFICATE OF MAILING

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 on the date shown below.

Attorney for Applicant(s)
Tanya M. Harding, Ph.D.

Date Mailed October 19, 2004

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ALEXANDRIA, VA 22313-1450

TRANSMITTAL LETTER

Further in reference to the Amendment and Response mailed on October 6, 2004, Applicant encloses the following for filing in the application referenced above:

☒ Original Signed Declaration Under 37 C.F.R. § 1.131

It is believed that no fee is required for this filing. The Director is hereby authorized to charge any additional fees that may be required, or credit over-payment, to Deposit Account No. 02-4550. A copy of this sheet is enclosed.

Please return the enclosed postcard to confirm that the items listed above have been received.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

By _____
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MAIL STOP AMENDMENT
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CERTIFICATE OF MAILING

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP AMENDMENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 on the date shown below.

Attorney for Applicant(s) _____
Tanya M. Harding, Ph.D.

Date Mailed 10/19/04

DECLARATION UNDER 37 C.F.R. § 1.131

I, Gwong-Jen J. Chang, hereby declare as follows:

1. I am the inventor of the subject matter described and claimed by United States Patent Application No. 09/701,536, referenced above ("the '536 application"). I am currently employed by The Government of the United States of America as represented by the Secretary of the Department of Health and Human Services, Centers for Disease Control and Prevention (the CDC), the assignee of the '536 application. I was employed by the CDC in Fort Collins, Colorado while developing the invention described and claimed in the referenced application.

2. I understand that claims pending in the present application have been rejected in view of United States Patent No. 6,258,788 to Schmaljohn ("Schmaljohn"). I understand that Schmaljohn has been cited as allegedly anticipating certain claims pending in the '536 application, or, in the alternative, as allegedly rendering the claimed embodiments obvious.

3. The effective filing date of Schmaljohn is presumed to be no earlier than November 20, 1997. The '536 application was filed on June 3, 1999, and claims priority to and benefit of United States Provisional Application No. 60/087,908, filed June 4, 1998. However, I invented the subject matter covered by the claims pending in the '536 application well prior to the November 20, 1997 effective filing date of Schmaljohn, when it became available as a reference.

4. Accompanying this Declaration as Exhibit A are copies of pages from my laboratory research notebook. These copies are true and accurate facsimile copies of the corresponding pages from my laboratory notebooks. All dates stated on these pages have been redacted.

5. All entries on the notebook pages of Exhibit A were made prior to November 20, 1997.

6. Accompanying this Declaration as Exhibit B is a photocopy of the Employee Invention Report ("EIR") I submitted to my employer the CDC, describing various aspects of the subject matter of the '536 application. This is a true and accurate copy of the EIR that I submitted to the CDC. All dates stated on these pages have been redacted.

7. The EIR was submitted prior to November 20, 1997.

8. The ideas and concepts demonstrated by Exhibit A arose from work conducted for the CDC in my laboratory in Fort Collins, Colorado. These ideas and concepts are embodied in the claims of the '536 application. Thus, conception and reduction to practice of the invention recited in the claims of the '536 application, as discussed in more detail below, occurred in the United States of America prior to November 20, 1997.

9. Exhibit A consists of 15 pages of laboratory notebook pages. The contents of these pages of Exhibits A, and pertinent statements made on these pages are discussed below.

A. Pages 1-7 of Exhibit A document the identification of a plasmid incorporating polynucleotide sequences encoding the prM and E proteins of Japanese Encephalitis Virus ("JEV"). These experiments are described in detail in Example 1 on pages 19-21 of the '536 application.

1) Page 1 describes the selection of several candidate colonies resulting from the cloning experiments inserting the prM and E protein coding sequences into a suitable plasmid expression vector.

2) Page 2 shows the results of restriction enzyme digestion and electrophoretic sizing of the candidate clones, illustrating that multiple clones contained an insert of the correct size to contain the prM and E DNA.

3) Pages 3 and 4 document the large scale purification of plasmids, including plasmid 2-7 selected as a vaccine.

4) All results documented on pages 1-4 of Exhibit A were completed before November 20, 1997.

B. Pages 5-6 of Exhibit A document the introduction (by transfection) of plasmids including the prM-E sequences into mammalian cells, and the characterization of the proteins expressed from the transfected plasmids by immunofluroescence assay ("IFA"). These experiments are described in detail in Example 2 (including Table 1), on pages 21-23 of the '536 application.

1) Page 5 describes the transfection of candidate plasmids into SVT2, COS-1 and COS-7 cells.

2) Page 6 documents the results of an IFA showing that cells expressing the 2-7 plasmid express the JEV antigen.

3) All results documented on pages 5-6 of Exhibit A were completed before November 20, 1997.

C. Pages 7-9 of Exhibit A document the construction of an alternative plasmid designated pCBJE1-14 designed to increase expression of the JEV sequences. Details of the construction and evaluation of the pCBJE1-14 plasmid vector are described in Examples 1 and 2, on pages 19-23 of the '536 application.

1) Page 7 schematically illustrates the elements of the plasmid backbone designed to give enhanced expression of JEV sequences incorporated into the vector.

2) Page 8 and 9 document insertion of the JEV DNA sequences into the vector backbone. Page 9 confirms that the pCBJE1-14 includes the correct JEV DNA sequences.

3) These results were obtained prior to November 20, 1997.

D. Page 10 of Exhibit A shows the characterization of the JEV E protein expressed from the of the JE-4B cell clone selected for recombinant antigen production as the biosynthetic subunit vaccine and serodiagnostic antigen. Characterization of the expressed E protein was performed using a panel of monoclonal antibodies specific for various epitopes of the JEV E protein. These results are described in detail in the text of Example 3 on page 24 and in Table 2 on page 25 of the '536 application. All results documented on page 7 of Exhibit A were completed before November 20, 1997.

E. Pages 11-14 of Exhibit A describe the preparation of, and immunization of mice with, the JEV DNA vaccine (pCDJE2-7). Example 5 on pages 27-29 details these experimental results. Page 8 illustrates the preparation of the DNA vaccine.

1) Page 11 and 12 outline the immunization protocol.

2) Page 13 documents assay of serum collected from mice immunized with the JEV DNA vaccine.

3) Page 14 describes the enzyme-linked immunosorbent assay ("ELISA") used to determine antibody production in the serum of immunized mice, and the raw data resulting from an ELISA showing the presence of antibodies specific for JEV in the serum of immunized mice.

4) These and similar results obtained from serum collected at subsequent time points from the same immunized mice are provided in Table 3, on page 29 of the '536 application. Mice were immunized, and serum collected at 3, 6, 9, 23, 40 and 60 weeks post-immunization.

5) All of these results were obtained prior to November 20, 1997.

F. Page 15 of Exhibit A documents experiments designed to evaluate the effectiveness of neonatal immunization with the JEV DNA vaccine. These experiments are

detailed in Examples 6 and 7 on pages 30-32 of the '536 application. These results demonstrated that the JEV DNA vaccine claimed in the '536 application was effective at protecting immunized animals against viral challenge. These results were obtained prior to November 20, 1997.

10. Exhibit B consists of a five page Employee Invention Report submitted by me to the CDC. The contents of Exhibits B, and pertinent statements made on the pages of Exhibit B are discussed below.

11. Page 3 of Exhibit B is a description of certain aspects of the subject matter which is the subject of the '536 application. This is a brief summary of experiments and results that demonstrated the production of an effective DNA vaccine for JEV. For example, I described the production of a long-lasting protective antibody response following immunization with the JEV DNA vaccine that is an embodiment of the invention claimed in the '536 application. The EIR provided as exhibit B was submitted to the CDC for review before November 20, 1997.

12. In conclusion, Exhibits A and B demonstrate that I invented the subject matter claimed in the '536 application before November 20, 1997, the date on which US Patent No. 6,258,788 to Schmaljohn became available as a reference.

13. All statements made herein and of my own knowledge are true and all statements made on information are believed to be true. Furthermore, these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statements made may jeopardize the validity of the application or any patent issuing thereon.

10-15-2004
Date

Gwong-Jen J. Chang